

Inventor(s): JAKOB *et al.*
Application No.: 09/961,395
Attorney Docket No.: 021123-0265258

I. AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all previous listings.

Claim 1. (Currently Amended) Process for the production of granular sodium percarbonate by fluid-bed spray granulation, the process comprising:

(1) spraying

- (i) an aqueous sodium carbonate solution or sodium carbonate suspension,
- (ii) an aqueous hydrogen peroxide solution, and
- (iii) at least one stability-enhancing additive

into a fluid bed containing sodium percarbonate particles; and

(2) evaporating water at the same time at a temperature of from 40°C to 95°C,

wherein

the additive is

- (i) a magnesium compound in an amount of from 50 to 2,000 ppm Mg^{2+} and/or
- (ii) 50 ppm to 2000 ppm of a chelate complexing agent selected from the group consisting of hydroxycarboxylic acids, aminocarboxylic acids, aminophosphonic acids, phosphonocarboxylic acids, hydroxyphosphonic acids, alkali metal salts thereof, ammonium salts thereof, and magnesium salts thereof, and
- (iii) further comprising waterglass having an SiO_2/Na_2O module of from 1 to 3 in an amount corresponding to 0.1 wt.% to 1 wt.% SiO_2 ;

wherein the quantity of the magnesium compound the, and chelate complexing agent and the SiO_2 are based on the sodium percarbonate to be produced, and wherein the additive does not contain a condensed phosphate.

Claim 2. (Previously presented) The process according to claim 1, wherein the magnesium compound is a magnesium sulfate, a magnesium acetate, or a magnesium salt of a chelate complexing agent, in an amount of from 100 ppm to 1000 ppm Mg^{2+} .

Claim 3. (Previously presented) The process according to claim 1, wherein the magnesium compound is added to the aqueous hydrogen peroxide solution.

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Claim 4. (Currently amended) The process according to claim 1, wherein the additive comprises a complexing agent ~~is~~ selected from the group consisting of nitrilotriacetic acid, iminodiacetic acid, ethylenediaminetetraacetic acid, iminodisuccinate, tartaric acid, gluconic acid, aminotri(methylene)phosphonic acid, ethylenediaminetetra(methylene)phosphonic acid, diethylenetriaminepenta(methylene)phosphonic acid, trimethylenetetra(methylene)phosphonic acid, tetramethylenetetra(methylene)phosphonic acid, pentamethylenetetra(methylene)phosphonic acid, hexamethylenetetra(methylene)phosphonic acid, 1-hydroxyethane-1,1-diphosphonic acid, sodium salts thereof, potassium salts thereof, and magnesium salts thereof.

Claim 5. (Previously presented) The process according to claim 1, wherein 100 ppm to 1000 ppm of the complexing agent is added to any one of the aqueous hydrogen peroxide solution, the aqueous sodium carbonate solution, or the sodium carbonate suspension.

Claim 6. (Cancelled).

Claim 7. (Previously presented) The process according to claim 1, wherein the spraying comprises using a three- or four-component atomising nozzle with external mixing, the nozzle further comprising a central pipe with ~~and~~ two or three jacketed pipes disposed around it, wherein the central pipe extends beyond the jacketed pipes by 2 to 10 times a radius of the central pipe.

Claim 8. (Currently Amended) Granular sodium percarbonate comprising

- (i) a grain structure obtainable by fluid-bed spray granulation,
- (ii) a magnesium compound in an amount of from 50 ppm to 2000 ppm Mg^{2+} and/or 50 ppm to 2000 ppm substantially evenly distributed in the grain, and/or
- (iii) one or more chelate complexing agents selected from the group consisting of hydroxycarboxylic acids, aminocarboxylic acids, aminophosphonic acids,

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phosphonocarboxylic acids, hydroxyphosphonic acids, alkali metal salts thereof, ammonium salts thereof, and magnesium salts thereof, and

(iv) further comprising waterglass in an amount corresponding to 0.1 wt.% to 1 wt.% SiO₂ substantially evenly distributed in the grain; and

wherein the sodium percarbonate does not contain a condensed phosphate, and wherein the granular sodium percarbonate has a TAM value of equal to or less than 8 μ W/g measured after 48 hours at 40°C.

Claim 9. (Previously presented) The granular sodium percarbonate according to claim 8, further comprising a single-layer or multilayer stabilising coating consisting of one or more hydrate-forming salts.

Claim 10. (Cancelled).

Claim 11. (Currently amended) The granular sodium percarbonate of claim ~~10~~ 8, wherein the amount of waterglass corresponds to 0.1 wt.% to 0.5 wt.% SiO₂.

Claim 12. (Currently amended) The process of claim 2, wherein the amount of the magnesium compound is from 200 ppm to 1000 ppm.

Claim 13. (Currently amended) The process according to claim 5, wherein 200 ppm to 1000 ppm of the chelate complexing agent is added.

Claim 14. (Currently amended) The process of claim ~~6~~ 1, wherein the SiO₂/Na₂O module is from 1 to 2.

Claim 15. (Currently amended) The process of claim ~~6~~ 1, wherein the amount of waterglass corresponds to 0.1 wt.% to 0.5 wt.% SiO₂.

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Claim 16. (Previously presented) The process of claim 7, wherein the aqueous sodium carbonate solution or sodium carbonate suspension has a Na_2CO_3 content of from 20 wt.% to 60 wt.% and the aqueous hydrogen peroxide solution has a concentration of 30 wt.% to 75 wt.%.

Claim 17. (Previously presented) The process of claim 16, wherein the aqueous sodium carbonate solution or sodium carbonate suspension has a Na_2CO_3 content of from 30 wt.% to 50 wt.%.

Claim 18. (Previously presented) The granular sodium percarbonate of claim 8, wherein the TAM value is less than 7 $\mu\text{W/g}$.

Claim 19. (Previously presented) The granular sodium percarbonate of claim 18, wherein the TAM value is from 4 $\mu\text{W/g}$ to 6 $\mu\text{W/g}$.